USACE NEW ORLEANS INDUSTRY FORUM

DESIGN-BUILD ACQUISITION AND CONTRACT RELATIONSHIPS

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PRESIDENT

DESIGN-BUILD INSTITUTE OF AMERICA

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- DESIGN-BUILD DOESN'T ALWAYS WORK
  - DESIGN-BUILD IS A PROCESS
  - DESIGN-BUILD IS NOT A PANACEA
  - EMPHASIS ON TEAMWORK
  - ASPIRATIONAL CONTRACTING
  - REQUIRES A MENTAL SHIFT
  - REQUIRES EDUCATION AND TRAINING
  - BUT…REPEATED HISTORICAL SUCCESS

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- WHAT D-B IS NOT BASED ON:
  - UNBALANCED RISK TRANSFER
    - USES APPORTIONED RISK
  - INEVITABLE FAILURE ASSUMPTIONS
    - ASSUMES SUCCESS POSSIBLE
  - MECHANISTIC SOLUTIONS TO HUMAN PROCESSES
    - LEVERAGES SUBJECTIVITY
  - CONFLICT MODELS OF BEHAVIOR
    - EMPHASIS ON TEAMWORK

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How to Fare Poorly with D-B

- Try to execute a design-bid-build project while calling it D-B
- Rely on blind luck by including performance requirements, ***or*** a trade-off source selection, ***or*** contract incentives, but not all three

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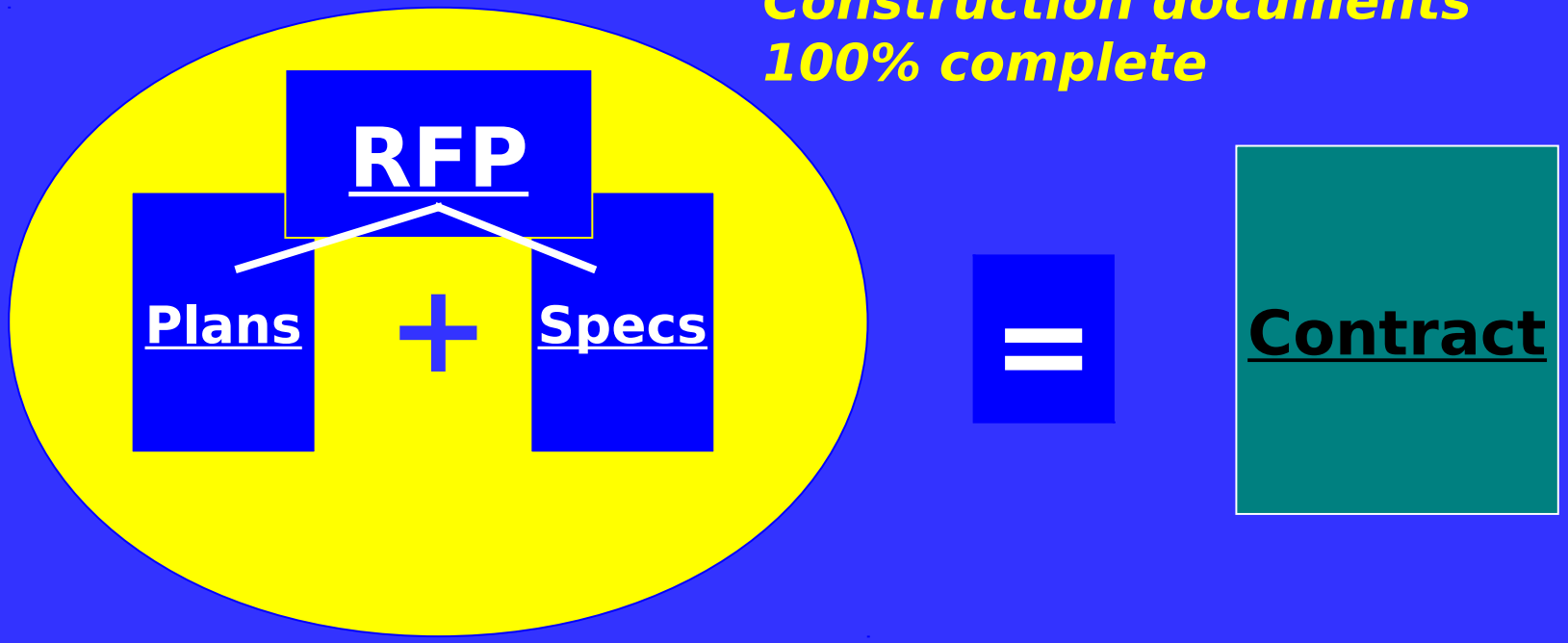
Design-Bid-Build Contracts: Structure

Construction documents 100% complete



Owner's focus: Managing requirements

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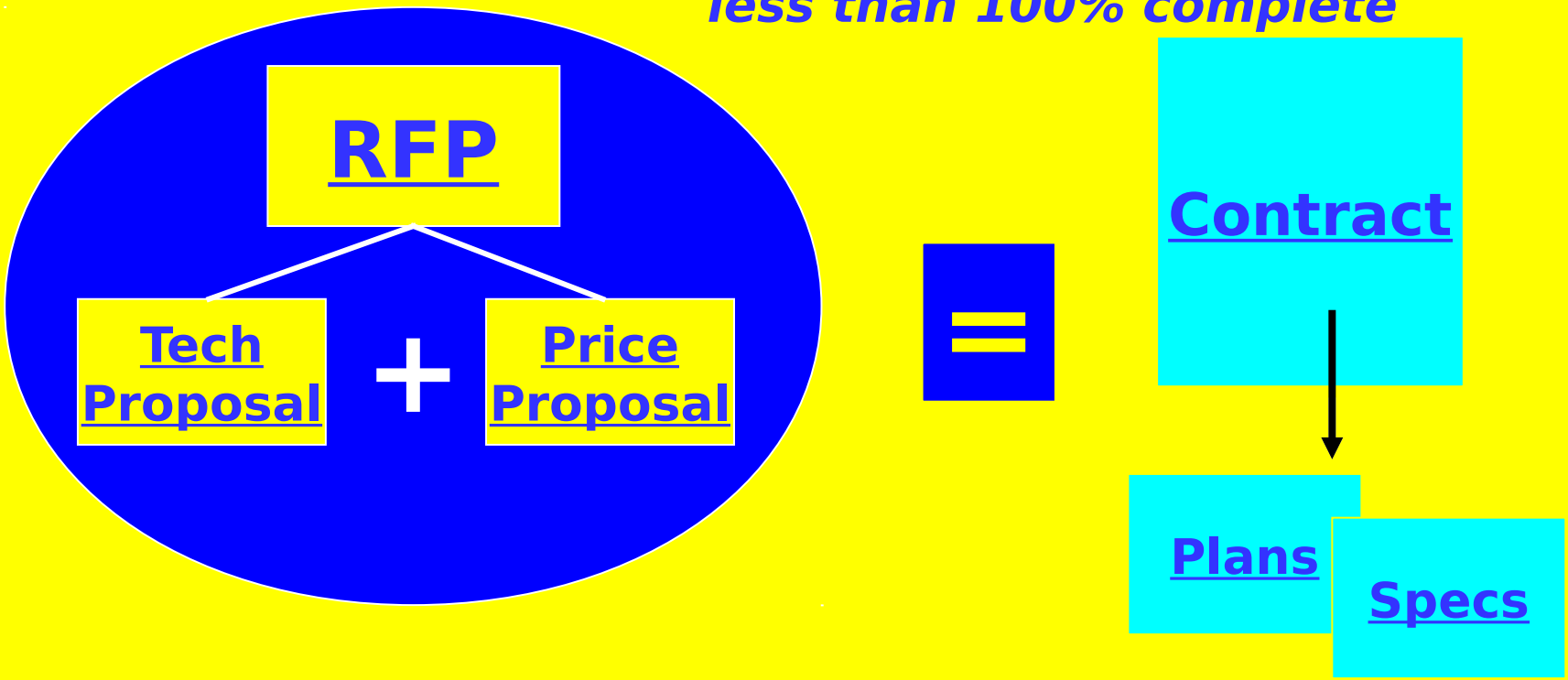
Design-Build Contracts: Structure

Construction documents less than 100% complete



Owner's focus: Managing behavior

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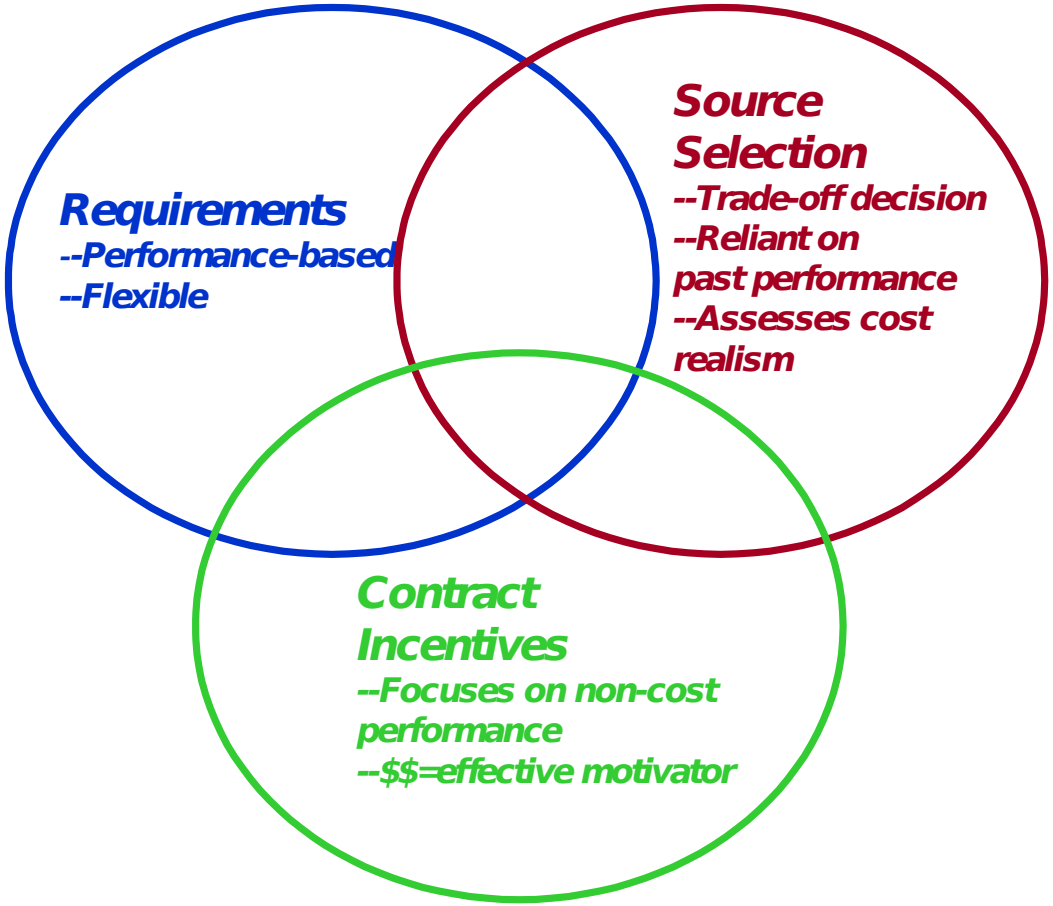
How to Maximize D-B



Emphasize three synergistic element

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Products in the D-B Process

Source Selection	•RFQ Preparation	•Down-Select Decision	•RFP Preparation	•Award Decision	•Contract Award/ Admin
Team	**Stakeholders** **•Team formed early--owner, tenant reps, users, project manager, A/E1, others**	**Phase I RFQ/ Source Selection**	**Stakeholders +** **•Team expanded to include input from Phase I successful offerors**	**Phase I I/RFP Source Selection**	**Final Integrated Product Team** **•Final team includes successful offeror**
Req'ts	**•Seeking to understand goals, constraints, problems**		**•Working to determine facility performance requirements**		**•During design phase, A/E2 determines design solution with input/insight from rest of team**
Products	•RFQ, including functional scope statement	•Qualification summaries •Down-select decision memo	•RFP, including performance requirements document drafted by A/E1	•Proposals •Source selection decision memo •Contract, including perf. reqts.	•Design specs, dwg drafted by A/E2

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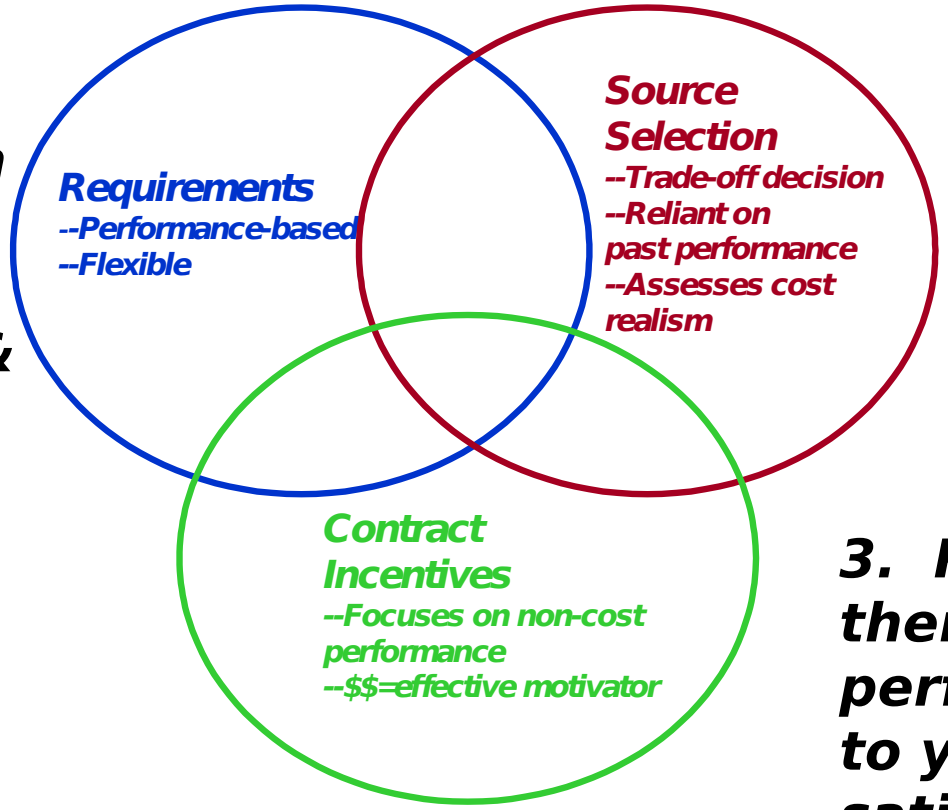
How to Get the Performance You Want From Your D-B Team

1. Pick the right D-B team

2. Give them flexibility, opportunity to succeed, & accountability



3. Reward them for performing to your satisfaction

The "fix" to the trust issue

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Types of Requirements

- Functional—requirements stated in terms of what functions/operations the end product must perform/accommodate
- Performance—requirements stated in terms of what the product or its components must do
- Prescriptive—solutions described in terms of exactly how the product and/or its components must be built

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Functional Requirements

- Top level requirements from owners, tenants, operators, maintainers—***the stakeholders***
- Expression of goals, constraints, challenges —what are the needs & “desirements?”
- Relates to expected operation of the end product
- Not engineering-oriented
- At the end of the day, what will the facility

e 40,000 foot stakeholders’ view of the end state

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Performance Requirements

- Engineering-oriented statements of “what” the product, facility, system, or component must do
- Allocation of top-level functional requirements
  - Decomposed or allocated into component elements within a work breakdown structure such as Uniformat
  - Each allocated requirement must have an objective, measurable element
- At the end of the day, how must the facility and its component parts perform to achieve the

A/E translations of functional requirements

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Requirements Development

- Requirements should be determined from general to specific

Functional → **Performance** → **Design**

- Each requirement at a higher level can decompose to several allocated requirements below
- If a higher level requirement is incorrect or misunderstood, the allocated functionality may be wrong as well
- This requirements evolution should occur in every project!

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ASTM UNIFORMAT II Classification of Building Elements

Level 1 Major Group Elements	Level 2 Group Elements	Level 3 Individual Elements
A. Substructure	A10 Foundations	A1010 Standard Foundations A1020 Special Foundations A1030 Slab on Grade
	A20 Basement Construction	A2010 Basement Excavation A2020 Basement Walls
B. Shell	B10 Superstructure	B1010 Floor Construction B1020 Roof Construction
	B20 Exterior Enclosure	B2010 Exterior Walls B2020 Exterior Windows B2030 Exterior Doors
	B30 Roofing	B3010 Roof Coverings B3020 Roof Openings
C. Interiors	C10 Interior Construction	C1010 Partitions C1020 Interior Doors C1030 Fittings
	C20 Stairs	C2010 Stair Construction C2020 Stair Finishes
	C30 Interior Finishes	C3010 Wall Finishes C3020 Floor Finishes C3030 Ceiling Finishes
D. Services	D10 Conveying	D1010 Elevators and Lifts D1020 Escalators & Moving Walks D2090 Other Conveying Systems
	D20 Plumbing	D2010 Plumbing Fixtures D2020 Domestic Water Distribution D2030 Sanitary Water D2040 Rain Water Drainage D2090 Other Plumbing Systems
	D30 HVAC	D3010 Energy Supply D3020 Heat Generating System D3030 Cooling Generating System D3040 Distribution Systems D3050 Terminal & Package Units D3060 Controls & Instrumentation D3070 Systems Testing & Balancing D3090 Other HVAC Systems & Equipment
	D40 Fire Protection	D4010 Sprinklers D4020 Standpipes D4030 Fire Protection Specialties D4090 Other Fire Protection Systems
	D50 Electrical	D5010 Electrical Service & Distribution D5020 Lighting and Branch Wiring D5030 Communications & Security D5090 Other Electrical Systems
E. Equipment & Furnishings	E10 Equipment	E1010 Commercial Equipment E1020 Institutional Equipment E1030 Vehicular Equipment E1090 Other Equipment
	E20 Furnishings	E2010 Fixed Furnishings E2020 Movable Furnishings
F. Special Construction & Demolition	F10 Special Construction	F1010 Special Structures F1020 Integrated Construction F1030 Special Construction Systems
	F20 Selective Building Demolition	F2010 Building Elements Demoliton F2020 Hazardous Components Abatement

ASTM UNIFORMAT II Classification of Building Related Sitework

Level 1 Major Group Elements	Level 2 Group Elements	Level 3 Individual Elements
G. Building Sitework	G10 Site Preparation	G1010 Site Clearing G1020 Site Demolition & Relocations G1030 Site Earthwork G1040 Hazardous Waste Remediation
	G20 Site Improvements	G2010 Roadways G2020 Parking Lots G2030 Pedestrian Paving G2040 Site Development G2050 Landscaping
	G30 Site Civil/Mechanical Utilities	G3010 Water Supply & Distribution Systems G3020 Sanitary Sewer Systems G3030 Storm Sewer Systems G3040 Heating Distribution G3050 Cooling Distribution G3060 Fuel Distribution G3070 Other Civil/Mechanical Utilities
	G40 Site Electrical Utilities	G4010 Electrical Distribution G4020 Exterior Lighting G4030 Exterior Communications & Security G4040 Other Electrical Utilities
	G50 Other Site Construction	G5010 Service Tunnels G5020 Other Site Systems & Equipment

Source: www.uniformat.com

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Requirement Decomposition/Flow Down Within Uniformat II

Functional Goal: "Build an office bldg on my existing lot to provide office space for 1,000 workers."

Functional requirement (Stakeholders)

Uniformat C10, Interior Construction: "Provide durable, paintable interior walls between the offices with STC 35 (min)."

Performance requirement (A/E 1)

Uniformat C1010, Partitions: "Install gypsum wallboard on 3 5/8" metal studs at 16" o.c. with XX acoustical insulation per YY Standards."

Design spec (A/E 2)

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Determining Performance Requirements

- Industry and commercial performance standards exist and are well-known in A/E community
- Performance requirements require Design-Builder to determine “how”
  - Fosters innovation, takes advantage of best thinking in commercial sector
  - Since D-B contractor team determines design solution, ***accountability for final performance is transferred from owner to the***

What makes this so difficult?

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- DESIGN-BUILD RESULTS:
  - 6 PERCENT LOWER COST
  - 12 PERCENT FASTER CONSTRUCTION
  - 33 PERCENT FASTER PROJECT TIME
  - HIGHER QUALITY ON ALL MEASURES
  - DRAMATICALLY REDUCED LITIGATION
  - USED ON COMPLEX PROJECTS WORLDWIDE

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- ADVANTAGES OF DESIGN-BUILD
  - SINGLE POINT OF RESPONSI BILITY
  - SINGLE ENTITY RESPONSIBLE FOR QUALITY OF DESIGN AND CONSTRUCTION
  - INHERENT VALUE ENGINEERING
  - KEY RISKS TO OWNER UNDER THE CONTROL OF ONE ENTITY

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- DESIGN-BUILD CONSIDERATIONS
  - TECHNICAL EXPERIENCE OF TEAM
  - PROFESSIONAL REPUTATION OF TEAM
  - PAST PERFORMANCE OF TEAM
    - RECENCY
    - RELEVANCY
    - QUALITY
  - PROJECT COMPLEXITY
  - REQUIREMENT, TIME, MONEY
  - ABILITY TO DEFINE REQUIREMENTS

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- HOW TO OPTIMIZE DESIGN-BUILD
  - USE OPTIMUM ACQUISITION APPROACHES
  - CAPTURE KEY PROJECT REQUIREMENTS EARLY
  - STICK TO YOUR PLAN – DON'T CHANGE
  - LEARN TO DEAL WITH "LOSS OF CONTROL" ISSUE

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- TYPICAL CHARACTERISTICS OF DESIGN-BUILD ACQUISITION PROCESS
  - PREAMBLE …CAPTURES THE ASPIRATIONS/CHALLENGE
  - BUILD TO BUDGET
  - PERFORMANCE REQUIREMENTS
  - COMPETITION OF IDEAS NOT NUMBERS
  - EMPHASIS ON EARLY TEAMING
  - 2 PHASE SOURCE SELECTION
    - QUALIFICATIONS BASED FIRST
    - BEST VALUE SECOND
  - TEAM CHARACTERISTICS VERY IMPORTANT
  - AWARDS AND INCENTIVES
  - SUCCESS ORIENTATION

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